CLAIMS

We Claim:

1. A method of making a colored cementitious composition without increasing water demand comprising forming a mixture of hydraulic cement and a liquid coloring suspension, said suspension comprising;
   a. liquid;
   b. polycarboxylate dispersant; and
   c. pigment.

2. The method of claim 1 wherein the liquid comprises water.

3. The method of claim 1 wherein the pigment comprises an inorganic pigment.

4. The method of claim 3 wherein the inorganic pigment comprises a metal containing pigment that comprises at least one of iron oxide, chromium oxide, aluminum oxide, lead chromate, titanium oxide, zinc white, zinc oxide, zinc sulfide, lead white, iron manganese black, cobalt green, manganese blue, manganese violet, cadmium sulfoselenide, chromium orange, nickel titanium yellow, chromium titanium yellow, cadmium sulfide, zinc yellow, cobalt blue, ultramarine blue or mixtures thereof.

5. The method of claim 1 wherein the pigment comprises an organic pigment.

6. The method of claim 5 wherein the organic pigment comprises phthalocyanine.

7. The method of claim 1, wherein the amount of polycarboxylate dispersant solids are from about 0.5% to about 3% and, the pigment solids are from about 50% to about 75%, based on the total weight of the liquid coloring suspension components.

8. The method of claim 1, wherein the amount of polycarboxylate dispersant solids are from about 1% to about 2.5%, and the pigment solids are from about 53% to about 70%, based on the total weight of the liquid coloring suspension components.

9. The method of claim 1, wherein the amount of polycarboxylate dispersant solids are from about 0.0008% to about 0.51% and the pigment solids are from about 0.1% to about 10%, by total dry weight of cementitious binder.

10. The method of claim 1, wherein the amount of polycarboxylate dispersant solids are from about 0.004% to about 0.25% and the pigment solids are from about 0.25% to about 6%, by total dry weight of cementitious binder.

11. The method of claim 1, wherein the water to cementitious materials ratio is about 0.38 to about 0.65.

12. The method of claim 1, wherein the cement comprises at least one of portland cement, modified portland cement, masonry cement, or mixtures thereof.

13. The method of claim 1 further comprising a cement admixture or additive that comprises at least one of set accelerator, set retarder, air detraining agent, air entraining agent, foaming agent, corrosion inhibitor, shrinkage reducing admixture, water reducer, fiber, pozzolan, clay, strength enhancing agents, rheology modifying agents, water repellents, wetting agents, water soluble polymers, dampproofing admixtures, gas formers, permeability reducers, pumping aids, fungicidal admixtures, germicidal admixtures, insecticidal admixtures, aggregates, alkali-reaction reducers, bonding admixtures, or mixtures thereof.

14. The method of claim 13, wherein the aggregate comprises at least one of silica, quartz, crushed round marble, glass spheres, granite, limestone, calcite, feldspar, alluvial sands, or sand.

15. The method of claim 13, wherein the pozzolan comprises at least one of natural pozzolan, metakaolin, fly ash, silica fume, calcined clay, or blast furnace slag.

16. A cementitious composition made by the method of claim 1, wherein the liquid coloring suspension improves the color in the cementitious composition without increasing the water demand.

17. The cementitious composition of claim 16 wherein the liquid comprises water.

18. The cementitious composition of claim 16 wherein the pigment comprises an inorganic pigment.

19. The cementitious composition of claim 18 wherein the inorganic pigment comprises a metal containing pigment that comprises at least one of iron oxide, chromium oxide, aluminum oxide, lead chromate, titanium oxide, zinc white, zinc oxide, zinc sulfide, lead white, iron manganese black, cobalt green, manganese blue, manganese violet, cadmium sulfoselenide, chromium orange, nickel titanium yellow, chromium titanium yellow, cadmium sulfide, zinc yellow, cobalt blue, ultramarine blue or mixtures thereof.

20. The cementitious composition of claim 16 wherein the pigment comprises an organic pigment.

21. The cementitious composition of claim 20 wherein the organic pigment comprises phthalocyanine.

22. The cementitious composition of claim 16, wherein the amount of polycarboxylate dispersant solids are from about 0.5% to about 3% and, the pigment solids are from about 50% to about 75%, based on the total weight of the liquid coloring suspension components.

23. The cementitious composition of claim 16, wherein the amount of polycarboxylate dispersant solids are from about 1% to about 2.5% and, the pigment solids are from about 53% to about 70%, based on the total weight of the liquid coloring suspension components.

24. The cementitious composition of claim 16, wherein the amount of polycarboxylate dispersant solids are from about 0.0008% to about 0.51% and the pigment solids are from about 0.1% to about 10%, by total dry weight of cementitious binder.

25. The cementitious composition of claim 16, wherein the amount of polycarboxylate dispersant solids are from about 0.004% to about 0.25% and the pigment solids are from about 0.25% to about 6%, by total dry weight of cementitious binder.

26. The cementitious composition of claim 17, wherein the water to cementitious materials ratio is about 0.38 to about 0.65.

27. The cementitious composition of claim 16, wherein the cement comprises at least one of portland cement, modified portland cement, masonry cement, or mixtures thereof.

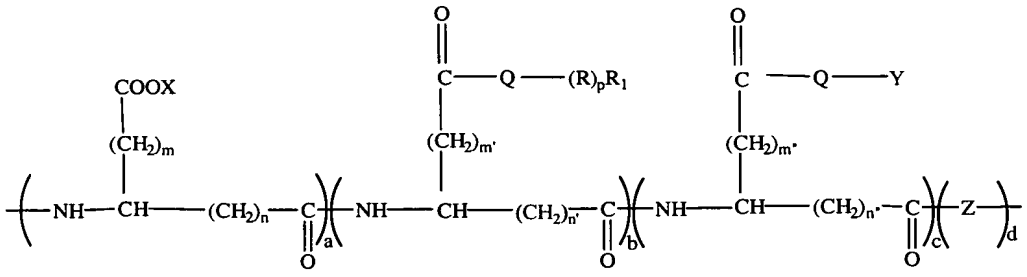
28. The cementitious composition of claim 16 further comprising a cement admixture or additive that comprises at least one of set accelerator, set retarder, air detraining agent, air entraining agent, foaming agent, corrosion inhibitor, shrinkage reducing admixture, water reducer, fiber, pozzolan, strength enhancing agents, rheology modifying agents, water repellents, wetting agents, water soluble polymers, dampproofing admixtures, gas formers, permeability reducers, pumping aids, fungicidal admixtures, germicidal admixtures, insecticidal admixtures, aggregates, alkali- reaction reducers, bonding admixtures, or mixtures thereof.

29. The cementitious composition of claim 28, wherein the aggregate comprises at least one of silica, quartz, crushed round marble, glass spheres, granite, limestone, calcite, feldspar, alluvial sands, or sand.

30. The cementitious composition of claim 28, wherein the pozzolan comprises at least one of natural pozzolan, metakaolin, fly ash, silica fume, calcined clay, or blast furnace slag.

31. The method of claim 1 wherein the polycarboxylate dispersant of the liquid coloring suspension is at least one of:

a) a dispersant of Formula (I):



wherein in Formula (I)

X is at least one of hydrogen, an alkali earth metal ion, an alkaline earth metal ion, ammonium ion, or amine;

R is at least one of C_1 to C_6 alkyl(ene) ether or mixtures thereof or C_1 to C_6 alkyl(ene) imine or mixtures thereof;

Q is at least one of oxygen, NH, or sulfur;

p is a number from 1 to about 300 resulting in at least one of a linear side chain or branched side chain;

R_1 is at least one of hydrogen, C_1 to C_{20} hydrocarbon, or functionalized hydrocarbon containing at least one of -OH, -COOH, an ester or amide derivative of -COOH, sulfonic acid, an ester or amide derivative of sulfonic acid, amine, or epoxy;

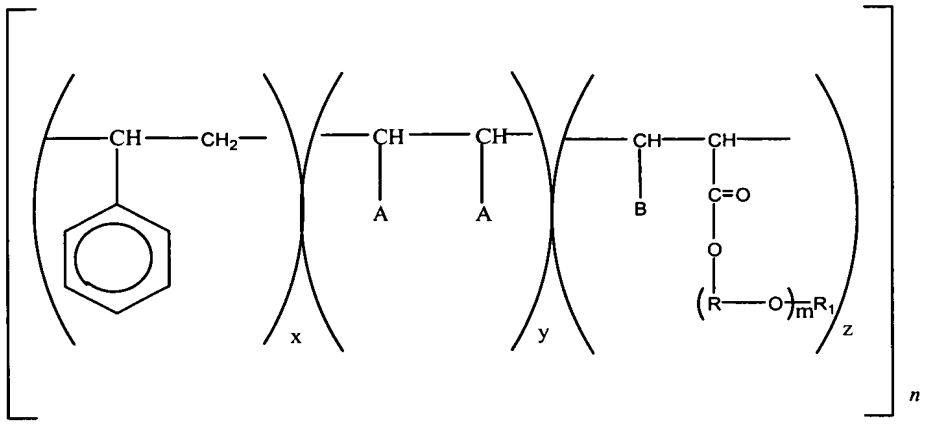
Y is at least one of hydrogen, an alkali earth metal ion, an alkaline earth metal ion, ammonium ion, amine, a hydrophobic hydrocarbon or polyalkylene oxide moiety that functions as a defoamer;

m, m', m'', n, n', and n'' are each independently 0 or an integer between 1 and about 20;

Z is a moiety containing at least one of i) at least one amine and one acid group, ii) two functional groups capable of incorporating into the backbone selected from the group consisting of dianhydrides, dialdehydes, and di-acid-chlorides, or iii) an imide residue; and

wherein a, b, c, and d reflect the mole fraction of each unit wherein the sum of a, b, c, and d equal one, wherein a, b, c, and d are each a value greater than or equal to zero and less than one, and at least two of a, b, c, and d are greater than zero;

b) a dispersant of Formula (II):



wherein in Formula (II):

A is COOM or optionally in the "y" structure an acid anhydride group (-CO-O-CO-) is formed in place of the A groups between the carbon atoms to which the A groups are bonded to form an anhydride;

B is COOM

M is hydrogen, a transition metal cation, the residue of a hydrophobic polyalkylene glycol or polysiloxane, an alkali metal ion, an alkaline earth metal ion, ferrous ion, aluminum ion, (alkanol)ammonium ion, or (alkyl)ammonium ion;

R is a C_{2-6} alkylene radical;

R1 is a C_{1-20} alkyl, C_{6-9} cycloalkyl, or phenyl group;

x, y, and z are a number from 0.01 to 100;

m is a number from 1 to 100; and

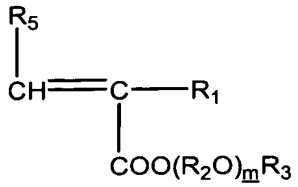
n is a number from 10 to 100;

c) a dispersant comprising at least one polymer or a salt thereof having the form of a copolymer of

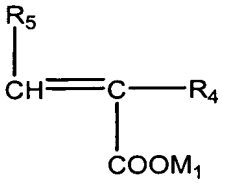
i) a maleic anhydride half-ester with a compound of the formula $RO(AO)_mH$, wherein R is a C_1-C_{20} alkyl group, A is a C_{2-4} alkylene group, and m is an integer from 2-16; and

ii) a monomer having the formula $CH_2=CHCH_2$-$(OA)_nOR$, wherein n is an integer from 1-90 and R is a C_{1-20} alkyl group;

d) a dispersant obtained by copolymerizing 5 to 98% by weight of an (alkoxy)polyalkylene glycol mono(meth)acrylic ester monomer (a) represented by the following general formula (1):



(1)

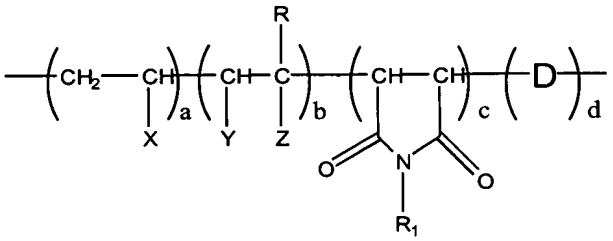


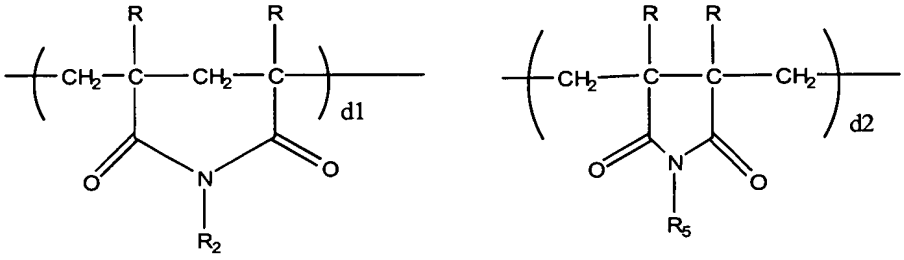
(2)

wherein R_1 stands for hydrogen atom or a methyl group, R_2O for one species or a mixture of two or more species of oxyalkylene group of 2 to 4 carbon atoms, providing two or more species of the mixture may be added either in the form of a block or in a random form, R_3 for a hydrogen atom or an alkyl group of 1 to 5 carbon atoms, and m is a value indicating the average addition mol number of oxyalkylene groups that is an integer in the range of 1 to 100, 95 to 2% by weight of a (meth)acrylic acid monomer (b) represented by the above general formula (2), wherein R_4 and R_5 are each independently a hydrogen atom or a methyl group, and M_1 for a hydrogen atom, a monovalent metal atom, a divalent metal atom, an ammonium group, or an organic amine group, and 0 to 50% by weight of other monomer (c) copolymerizable with these monomers, provided that the total amount of (a), (b), and (c) is 100% by weight;

e) a graft polymer that is a polycarboxylic acid or a salt thereof, having side chains derived from at least one species selected from the group consisting of oligoalkyleneglycols, polyalcohols, polyoxyalkylene amines, and polyalkylene glycols;

f) a dispersant of Formula (III):





wherein in Formula (III):

D = a component selected from the group consisting of the structure d1, the structure d2, and mixtures thereof;

X = H, CH_3, C_2 to C_6 Alkyl, Phenyl, p-Methyl Phenyl, or Sulfonated Phenyl;

Y = H or -COOM;

R = H or CH_3;

Z = H, $-SO_3M$, $-PO_3M$, -COOM, $-O(CH_2)_nOR_3$ where n= 2 to 6, $-COOR_3$, or $-(CH_2)_nOR_3$ where n = 0 to 6, $-CONHR_3$, $-CONHC(CH_3)_2$ CH_2SO_3M, $-COO(CHR_4)_nOH$ where n= 2 to 6, or $-O(CH_2)_nOR_4$ wherein n = 2 to 6;

R_1, R_2, R_3, R_5 are each independently $-(CHRCH_2O)_mR_4$ random copolymer of oxyethylene units and oxypropylene units where m= 10 to 500 and wherein the amount of oxyethylene in the random copolymer is from about 60% to 100% and the amount of oxypropylene in the random copolymer is from 0% to about 40%;

R_4 = H, Methyl, C_2 to about C_6 Alkyl, or about C_6 to about C_{10} aryl;

M = H, Alkali Metal, Alkaline Earth Metal, Ammonium, Amine, triethanol amine, Methyl, or C_2 to about C_6 Alkyl;

a = 0 to about 0.8;

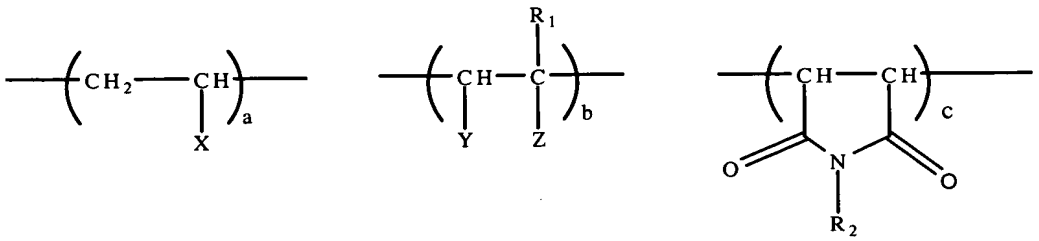
b = about 0.2 to about 1.0;

c = 0 to about 0.5;

d = 0 to about 0.5; and

wherein a, b, c, and d represent the mole fraction of each unit and the sum of a, b, c, and d is 1.0;

g) a dispersant of Formula (IV):



wherein in Formula (IV):

the "b" structure is one of a carboxylic acid monomer, an ethylenically unsaturated monomer, or maleic anhydride wherein an acid anhydride group (-CO-O-CO-) is formed in place of the groups Y and Z between the carbon atoms to which the groups Y and Z are bonded respectively, and the "b" structure must include at least one moiety with a pendant ester linkage and at least one moiety with a pendant amide linkage;

X = H, CH_3, C_2 to C_6 Alkyl, Phenyl, p-Methyl Phenyl, p-Ethyl Phenyl, Carboxylated Phenyl, or Sulfonated Phenyl;

Y = H, -COOM, -COOH, or W;

W = a hydrophobic defoamer represented by the formula $R_5O\text{-}(CH_2CH_2O)_s\text{-}(CH_2C(CH_3)HO)_t\text{-}(CH_2CH_2O)_u$ where s, t, and u are integers from 0 to 200 with the proviso that $t > (s+u)$ and wherein the total amount of hydrophobic defoamer is present in an amount less than about 10% by weight of the polycarboxylate dispersant;

Z = H, -COOM, $-O(CH_2)_nOR_3$ where n= 2 to 6, $-COOR_3$, $-(CH_2)_nOR_3$ where n = 0 to 6, or $-CONHR_3$;

R_1 = H, or CH_3;

R_2, R_3, are each independently a random copolymer of oxyethylene units and oxypropylene units of the general formula $-(CH(R_1)CH_2O)_mR_4$ where m=10

to 500 and wherein the amount of oxyethylene in the random copolymer is from about 60% to 100% and the amount of oxypropylene in the random copolymer is from 0% to about 40%;

R_4 = H, Methyl, or C_2 to C_8 Alkyl;

R_5 = C_1 to C_{18} alkyl or C_6 to C_{18} alkyl aryl;

M = Alkali Metal, Alkaline Earth Metal, Ammonia, Amine, monoethanol amine, diethanol amine, triethanol amine, morpholine, imidazole;

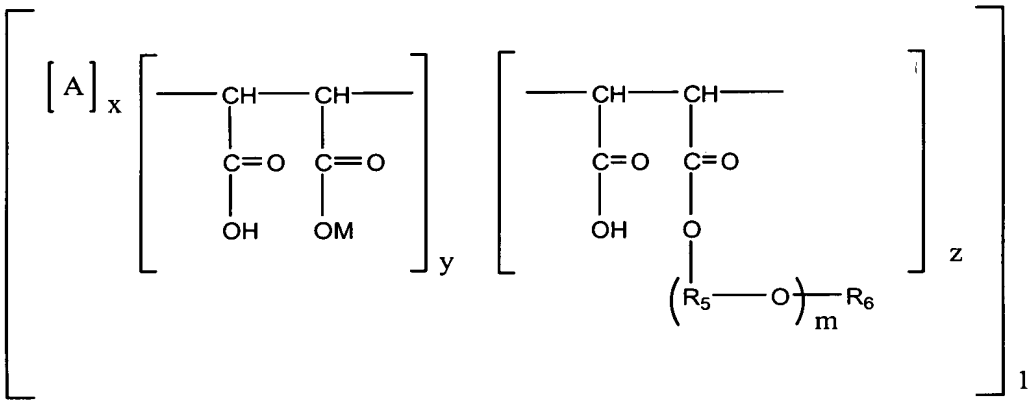
a = 0.01-0.8;

b = 0.2-0.99;

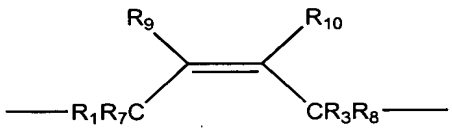
c = 0-0.5; and

wherein a, b, c represent the mole fraction of each unit and the sum of a, b, and c, is 1;

h) a random copolymer corresponding to the following Formula (V) in free acid or salt form having the following monomer units and numbers of monomer units:



wherein A is selected from the moieties (i) or (ii)



(i) $-CR_1R_2-CR_3R_4-$ (ii)

wherein R_1 and R_3 are selected from substituted benzene, C_{1-8} alkyl, C_{2-8} alkenyl, C_{2-8} alkylcarbonyl, C_{1-8} alkoxy, carboxyl, hydrogen, and a ring, R_2 and R_4 are selected from the group consisting of hydrogen and C_{1-4} alkyl,

wherein R_1 and R_3 can together with R_2 and/or R_4 when R_2 and/or R_4 are C_{1-4} alkyl form the ring;

R_7, R_8, R_9, and R_{10} are individually selected from the group consisting of hydrogen, C_{1-6} alkyl, and a C_{2-8} hydrocarbon chain, wherein R_1 and R_3 together with R_7 and/or R_8, R_9, and R_{10} form the C_{2-8} hydrocarbon chain joining the carbon atoms to which they are attached, the hydrocarbon chain optionally having at least one anionic group, wherein the at least one anionic group is optionally sulfonic;

M is selected from the group consisting of hydrogen, and the residue of a hydrophobic polyalkylene glycol or a polysiloxane, with the proviso that when A is (ii) and M is the residue of a hydrophobic polyalkylene glycol, M must be different from the group $-(R_5O)_mR_6$;

R_5 is a C_{2-8} alkylene radical;

R_6 is selected from the group consisting of C_{1-20} alkyl, C_{6-9} cycloalkyl and phenyl;

n, x, and z are numbers from 1 to 100;

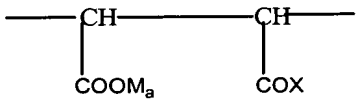
y is 0 to 100;

m is 2 to 1000;

the ratio of x to (y+z) is from 1:10 to 10:1 and the ratio of y:z is from 5:1 to 1:100;

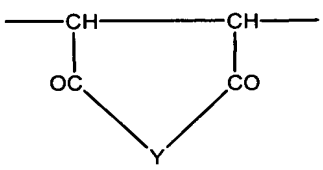
i) a copolymer of oxyalkyleneglycol-alkenyl ethers and unsaturated dicarboxylic acids, comprising:

i) 0 to 90 mol % of at least one component of the formula 3a or 3b:



(3 a)

or



(3 b)

wherein M is a hydrogen atom, a mono- or divalent metal cation, an ammonium ion or an organic amine residue, a is 1, or when M is a divalent metal cation a is ½;

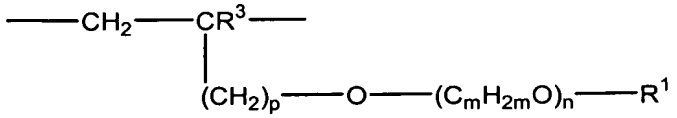
wherein X is $-OM_a$,

$-O-(C_mH_{2m}O)_n-R^1$ in which R^1 is a hydrogen atom, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulphonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100,

$-NHR_2$,$-N(R^2)_2$ or mixtures thereof in which $R^2=R^1$ or $-CO-NH_2$; and

wherein Y is an oxygen atom or $-NR^2$;

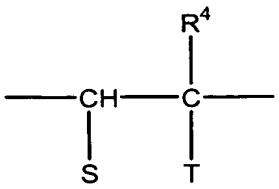
ii) 1 to 89 mol% of components of the general formula 4:



(4)

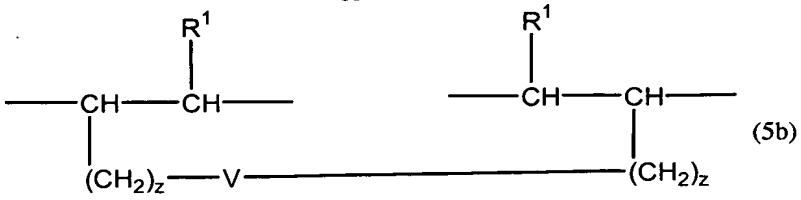
wherein R_3 is a hydrogen atom or an aliphatic hydrocarbon radical containing from 1 to 5 carbon atoms, p is 0 to 3, and R_1 is hydrogen, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulfonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100, and

iii) 0.1 to 10 mol % of at least one component of the formula 5a or 5b:



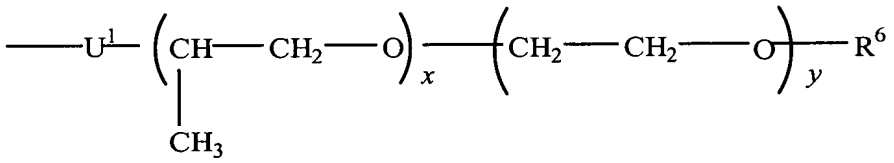
(5a)

or

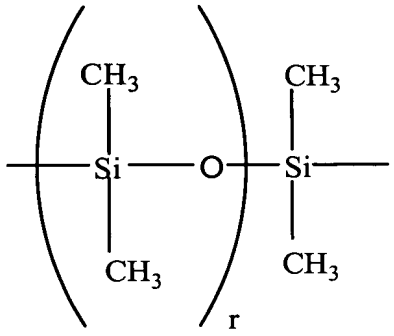


(5b)

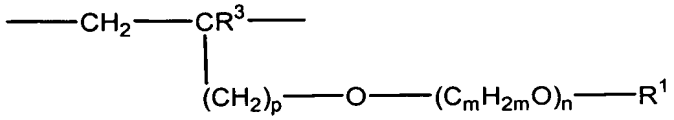
wherein S is a hydrogen atom or $-COOM_a$ or $-COOR_5$, T is $-COOR_5$, $-W-R_7$, $-CO-[-NH-(CH2)3)-]_s-W-R_7$, $-CO-O-(CH_2)_z-W-R_7$, a radical of the general formula:



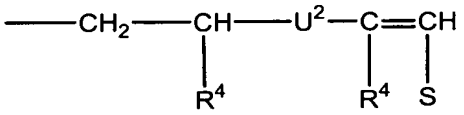
or $-(CH_2)_z-V-(CH_2)_z-CH=CH-R_1$, or when S is $-COOR_5$ or $-COOM_a$, U_1 is -CO-NHM-, -O- or $-CH_2O$, U_2 is -NH-CO-, -O- or $-OCH_2$, V is $-O-CO-C_6H_4-CO-O-$ or -W-, and W is



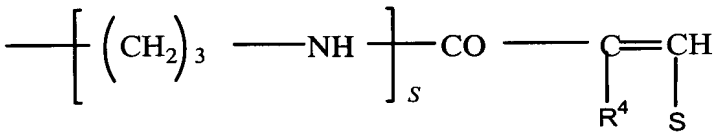
R4 is a hydrogen atom or a methyl radical, R5 is an aliphatic hydrocarbon radical containing 3 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an aryl radical containing 6 to 14 carbon atoms, $R_6=R_1$ or



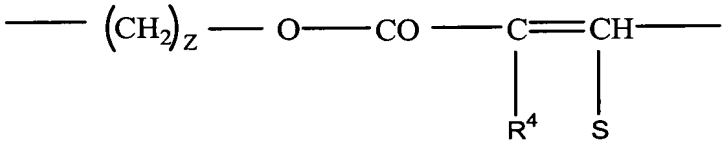
or



$R_7=R_1$ or

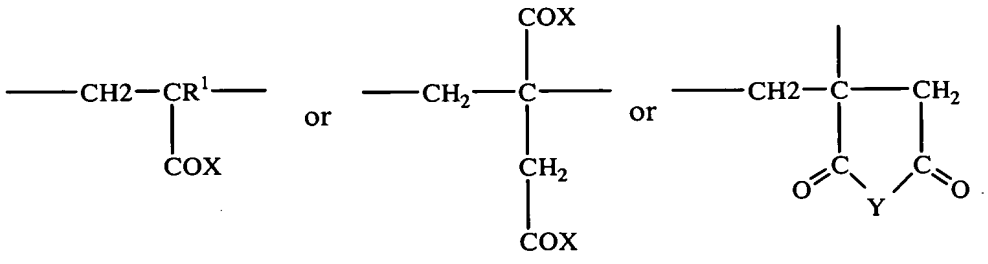


or



r is 2 to 100, s is 1 or 2, x is 1 to 150, y is 0 to 15 and z is 0 to 4;

iv) 0 to 90 mol % of at least one component of the formula 6a, 6b, or 6c:



(6a) (6b) (6c)

wherein M is a hydrogen atom, a mono- or divalent metal cation, an ammonium ion or an organic amine residue, a is 1, or when M is a divalent metal cation a is ½;

wherein X is $-OM_a$,

$-O-(C_mH_{2m}O)_n-R^1$ in which R^1 is a hydrogen atom, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulphonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100,

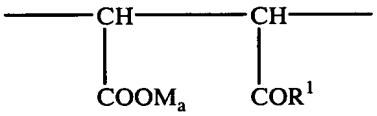
$-NH-(C_mH_{2m}O)_n-R^1$,

$-NHR_2$,$-N(R^2)_2$ or mixtures thereof in which $R^2=R^1$ or $-CO-NH_2$; and

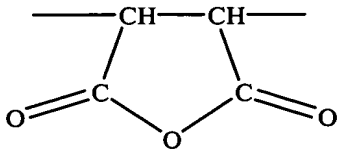
wherein Y is an oxygen atom or $-NR^2$;

j) a copolymer of dicarboxylic acid derivatives and oxyalkylene glycol-alkenyl ethers, comprising:

i) 1 to 90 mol.% of at least one member selected from the group consisting of structural units of formula 7a and formula 7b:



(7a)



(7b)

wherein M is H, a monovalent metal cation, a divalent metal cation, an ammonium ion or an organic amine;

a is ½ when M is a divalent metal cation or 1 when M is a monovalent metal cation;

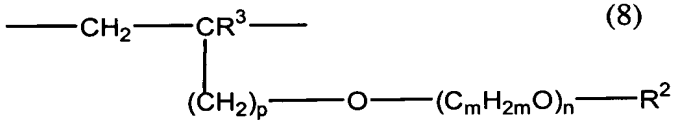
wherein R^1 is $-OM_a$, or

$-O-(C_mH_{2m}O)_n-R^2$ wherein R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

m is 2 to 4;

n is 1 to 200;

ii) 0.5 to 80 mol.% of the structural units of formula 8:



(8)

wherein R^3 is H or a C_{1-5} aliphatic hydrocarbon;

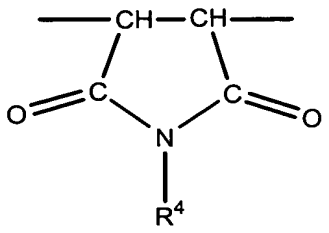
p is 0 to 3;

R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

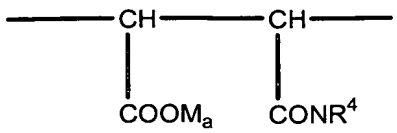
m is 2 to 4;

n is 1 to 200;

iii) 0.5 to 80 mol.% structural units selected from the group consisting of formula 9a and formula 9b:



(9a)



(9b)

wherein R^4 is H, C_{1-20} aliphatic hydrocarbon that is optionally substituted with at least one hydroxyl group, $-(C_mH_{2m}O)_n-R^2$, $-CO-NH-R^2$, C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

M is H, a monovalent metal cation, a divalent metal cation, an ammonium ion or an organic amine;

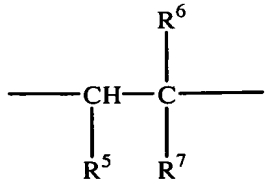
a is ½ when M is a divalent metal cation or 1 when M is a monovalent metal cation;

R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

m is 2 to 4;

n is 1 to 200;

iv) 1 to 90 mol.% of structural units of formula 10



(10)

wherein R^5 is methyl, or methylene group, wherein R^5 forms one or more 5 to 8 membered rings with R^7;

R^6 is H, methyl, or ethyl;

R^7 is H, a C_{1-20} aliphatic hydrocarbon, a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$, a C_{5-8} cycloaliphatic hydrocarbon, $-OCOR^4$, $-OR^4$, and $-COOR^4$, wherein R^4 is H, a C_{1-20} aliphatic hydrocarbon that is optionally substituted with at least one -OH, $-(C_mH_{2m}O)_n-R^2$, $-CO-NH-R^2$, C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl residue that is optionally substituted with a member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$.

32. A cementitious composition made by the method of claim 31.

33. The cementitious composition of claim 32 wherein the liquid comprises water.

34. The cementitious composition of claim 32 wherein the pigment comprises an inorganic pigment.

35. The cementitious composition of claim 34 wherein the inorganic pigment comprises a metal containing pigment that comprises at least one of iron oxide, chromium oxide, aluminum oxide, lead chromate, titanium oxide, zinc white, zinc oxide, zinc sulfide, lead white, iron manganese black, cobalt green, manganese blue, manganese violet, cadmium sulfoselenide, chromium orange, nickel titanium yellow, chromium titanium yellow, cadmium sulfide, zinc yellow, cobalt blue, ultramarine blue or mixtures thereof.

36. The cementitious composition of claim 32 wherein the pigment comprises an organic pigment.

37. The cementitious composition of claim 36 wherein the organic pigment comprises phthalocyanine.

38. The cementitious composition of claim 32, wherein the amount of polycarboxylate dispersant solids are from about 0.5% to about 3% and, the pigment solids are from

about 50% to about 75%, based on the total weight of the liquid coloring suspension components.

39. The cementitious composition of claim 32, wherein the amount of polycarboxylate dispersant solids are from about 1% to about 2.5% and, the pigment solids are from about 53% to about 70%, based on the total weight of the liquid coloring suspension components.

40. The cementitious composition of claim 32, wherein the amount of polycarboxylate dispersant solids are from about 0.0008% to about 0.51% and the pigment solids are from about 0.1% to about 10%, by total dry weight of cementitious binder.

41. The cementitious composition of claim 32, wherein the amount of polycarboxylate dispersant solids are from about 0.004% to about 0.25% and the pigment solids are from about 0.25% to about 6%, by total dry weight of cementitious binder.

42. The cementitious composition of claim 33, wherein the water to cementitious materials ratio is about 0.38 to about 0.65.

43. The cementitious composition of claim 32, wherein the cement is at least one of portland cement, modified portland cement, masonry cement, or mixtures thereof.

44. The cementitious composition of claim 32 further comprising a cement admixture or additive that comprises at least one of set accelerator, set retarder, air detraining agent, air entraining agent, foaming agent, corrosion inhibitor, shrinkage reducing admixture, water reducer, fiber, pozzolan, strength enhancing agents, rheology modifying agents, water repellents, wetting agents, water soluble polymers, dampproofing admixtures, gas formers, permeability reducers, pumping aids, fungicidal admixtures, germicidal admixtures, insecticidal admixtures, aggregates, alkali- reaction reducers, bonding admixtures, or mixtures thereof.

45. The cementitious composition of claim 44, wherein the aggregate comprises at least one of silica, quartz, crushed round marble, glass spheres, granite, limestone, calcite, feldspar, alluvial sands, or sand.

46. The cementitious composition of claim 44, wherein the pozzolan comprises at least one of natural pozzolan, metakaolin, fly ash, silica fume, calcined clay, or blast furnace slag.

47. A liquid coloring suspension comprising:

a. liquid

b. polycarboxylate dispersant;

c. pigment; and

d. thixotropic additive;

wherein the viscosity of the liquid coloring suspension is stable over time.

48. The liquid coloring suspension of claim 47, wherein the amount of polycarboxylate dispersant solids are from about 0.5% to about 3%, pigment solids are from about 50% to about 75%, and thixotropic additive is from about 0.05% to about 1%, based on the total weight of the liquid coloring suspension.

49. The liquid coloring suspension of claim 47, wherein the amount of polycarboxylate dispersant solids are from about 1% to about 2.5%, pigment solids are from about 53% to about 70%, and thixotropic additive is from about 0.1% to about 0.7%, based on the total weight of the liquid coloring suspension.

50. The liquid coloring suspension of claim 47 wherein the liquid comprises water.

51. The liquid coloring suspension of claim 47 wherein the pigment comprises an inorganic pigment.

52. The liquid coloring suspension of claim 51 wherein the inorganic pigment comprises a metal containing pigment that comprises at least one of iron oxide, chromium oxide, aluminum oxide, lead chromate, titanium oxide, zinc white, zinc oxide, zinc

sulfide, lead white, iron manganese black, cobalt green, manganese blue, manganese violet, cadmium sulfoselenide, chromium orange, nickel titanium yellow, chromium titanium yellow, cadmium sulfide, zinc yellow, cobalt blue, ultramarine blue or mixtures thereof.

53. The liquid coloring suspension of claim 47 wherein the pigment comprises an organic pigment.

54. The liquid coloring suspension of claim 53 wherein the organic pigment comprises phthalocyanine.

55. The liquid coloring suspension of claim 47 wherein the thixotropic additive comprises at least one of organic flocculents, organic emulsions of paraffin, coal tar, asphalt, acrylics, bentonite, pyrogenic silicas, natural pozzolans, fly ash, hydrated lime, organoclay, cellulose or mixtures thereof.

56. The liquid coloring suspension of claim 55 wherein the organoclay comprises at least one of hectorite clay or smectite clay.

57. The liquid coloring suspension of claim 47 further comprising at least one of set accelerators, set retarders, air detraining agents, air entraining agents, shrinkage reducing admixtures, water reducers, foaming agents, dampproofing admixtures, pumping aids, fungicidal admixtures, insecticidal admixtures, germicidal admixtures, alkali activity reducers, bonding admixtures, or corrosion inhibitors.

58. A colored cementitious composition comprising hydraulic cement and a liquid coloring suspension, said liquid coloring suspension comprising:

a. liquid;

b. polycarboxylate dispersant;

c. pigment; and

d. thixotropic additive;

wherein the liquid coloring suspension improves the color in the cementitious composition without increasing the water demand.

59. The colored cementitious composition of claim 58 wherein the liquid comprises water.

60. The colored cementitious composition of claim 58 wherein the pigment comprises an inorganic pigment.

61. The colored cementitious composition of claim 60 wherein the inorganic pigment comprises a metal containing pigment that comprises at least one of iron oxide, chromium oxide, aluminum oxide, lead chromate, titanium oxide, zinc white, zinc oxide, zinc sulfide, lead white, iron manganese black, cobalt green, manganese blue, manganese violet, cadmium sulfoselenide, chromium orange, nickel titanium yellow, chromium titanium yellow, cadmium sulfide, zinc yellow, cobalt blue, ultramarine blue or mixtures thereof.

62. The colored cementitious composition of claim 58 wherein the pigment comprises an organic pigment.

63. The colored cementitious composition of claim 62 wherein the organic pigment comprises phthalocyanine.

64. The colored cementitious composition of claim 58 wherein the thixotropic additive comprises at least one of organic flocculents, organic emulsions of paraffin, coal tar, asphalt, acrylics, bentonite, pyrogenic silicas, natural pozzolans, fly ash, hydrated lime, organoclay, cellulose or mixtures thereof.

65. The colored cementitious composition of claim 64 wherein the organoclay comprises at least one of hectorite clay or smectite clay.

66. The colored cementitious composition of claim 58, wherein the amount of polycarboxylate dispersant solids are from about 0.0008% to about 0.51%, pigment solids are from about 0.1% to about 10%, and thixotropic additive is from about 0.00008% to about 0.17%, by total dry weight of cementitious binder.

67. The colored cementitious composition of claim 58, wherein the amount of polycarboxylate dispersant solids are from about 0.004% to about 0.25%, pigment solids are from about 0.25% to about 6%, and thixotropic additive is from about 0.0004% to about 0.07%, by total dry weight of cementitious binder.

68. The cementitious composition of claim 59, wherein the water to cementitious composition ratio is about 0.38 to about 0.65.

69. The colored cementitious composition of claim 58, wherein the cement comprises at least one of portland cement, modified portland cement, masonry cement, or mixtures thereof.

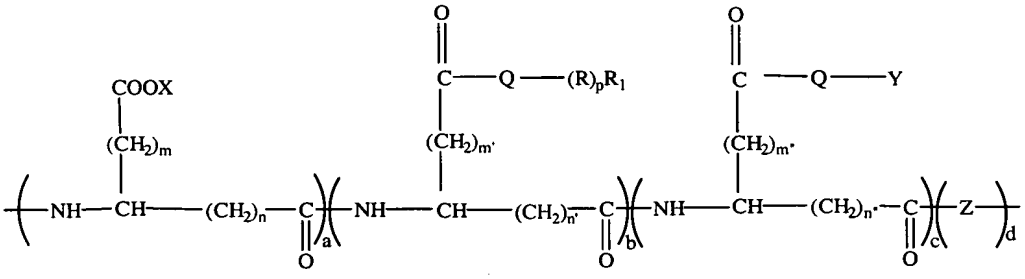
70. The colored cementitious composition of claim 58 further comprising a cement admixture or additive that comprises at least one of set accelerator, set retarder, air detraining agent, air entraining agent, foaming agent, corrosion inhibitor, shrinkage reducing admixture, water reducer, fiber, pozzolan, strength enhancing agents, rheology modifying agents, water repellents, wetting agents, water soluble polymers, dampproofing admixtures, gas formers, permeability reducers, pumping aids, fungicidal admixtures, germicidal admixtures, insecticidal admixtures, aggregates, alkali- reaction reducers, bonding admixtures, or mixtures thereof.

71. The colored cementitious composition of claim 70, wherein the aggregate comprises at least one of silica, quartz, crushed round marble, glass spheres, granite, limestone, calcite, feldspar, alluvial sands, or sand.

72. The colored cementitious composition of claim 70, wherein the pozzolan comprises at least one of natural pozzolan, metakaolin, fly ash, silica fume, calcined clay, or blast furnace slag.

73. The colored cementitious composition of claim 58 wherein the polycarboxylate dispersant of the liquid coloring suspension is at least one of:

a) a dispersant of Formula (I):



wherein in Formula (I)

X is at least one of hydrogen, an alkali earth metal ion, an alkaline earth metal ion, ammonium ion, or amine;

R is at least one of C_1 to C_6 alkyl(ene) ether or mixtures thereof or C_1 to C_6 alkyl(ene) imine or mixtures thereof;

Q is at least one of oxygen, NH, or sulfur;

p is a number from 1 to about 300 resulting in at least one of a linear side chain or branched side chain;

R_1 is at least one of hydrogen, C_1 to C_{20} hydrocarbon, or functionalized hydrocarbon containing at least one of -OH, -COOH, an ester or amide derivative of -COOH, sulfonic acid, an ester or amide derivative of sulfonic acid, amine, or epoxy;

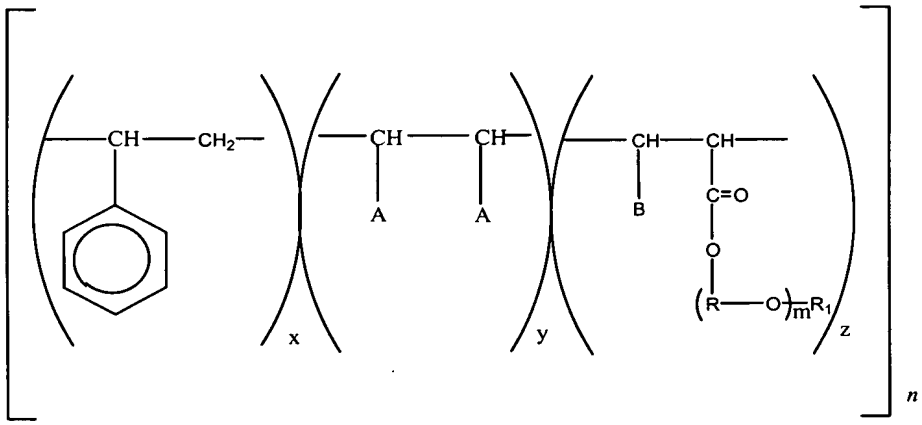
Y is at least one of hydrogen, an alkali earth metal ion, an alkaline earth metal ion, ammonium ion, amine, a hydrophobic hydrocarbon or polyalkylene oxide moiety that functions as a defoamer;

m, m', m'', n, n', and n'' are each independently 0 or an integer between 1 and about 20;

Z is a moiety containing at least one of i) at least one amine and one acid group, ii) two functional groups capable of incorporating into the backbone selected from the group consisting of dianhydrides, dialdehydes, and di-acid-chlorides, or iii) an imide residue; and

wherein a, b, c, and d reflect the mole fraction of each unit wherein the sum of a, b, c, and d equal one, wherein a, b, c, and d are each a value greater than or equal to zero and less than one, and at least two of a, b, c, and d are greater than zero;

b) a dispersant of Formula (II):



wherein in Formula (II):

A is COOM or optionally in the "y" structure an acid anhydride group (-CO-O-CO-) is formed in place of the A groups between the carbon atoms to which the A groups are bonded to form an anhydride;

B is COOM

M is hydrogen, a transition metal cation, the residue of a hydrophobic polyalkylene glycol or polysiloxane, an alkali metal ion, an alkaline earth metal ion, ferrous ion, aluminum ion, (alkanol)ammonium ion, or (alkyl)ammonium ion;

R is a C_{2-6} alkylene radical;

R1 is a C_{1-20} alkyl, C_{6-9} cycloalkyl, or phenyl group;

x, y, and z are a number from 0.01 to 100;

m is a number from 1 to 100; and

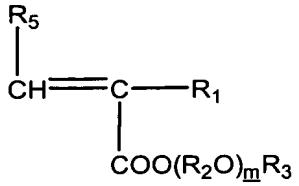
n is a number from 10 to 100;

c) a dispersant comprising at least one polymer or a salt thereof having the form of a copolymer of

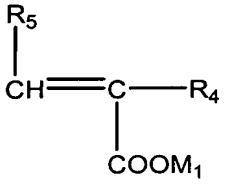
i) a maleic anhydride half-ester with a compound of the formula $RO(AO)_mH$, wherein R is a C_1-C_{20} alkyl group, A is a C_{2-4} alkylene group, and m is an integer from 2-16; and

ii) a monomer having the formula $CH_2=CHCH_2-(OA)_nOR$, wherein n is an integer from 1-90 and R is a C_{1-20} alkyl group;

d) a dispersant obtained by copolymerizing 5 to 98% by weight of an (alkoxy)polyalkylene glycol mono(meth)acrylic ester monomer (a) represented by the following general formula (1):



(1)

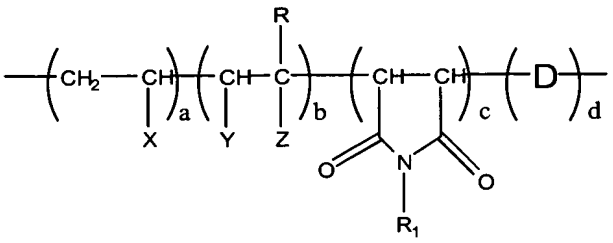


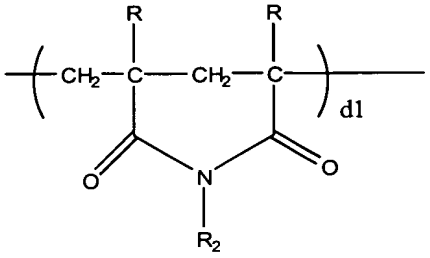
(2)

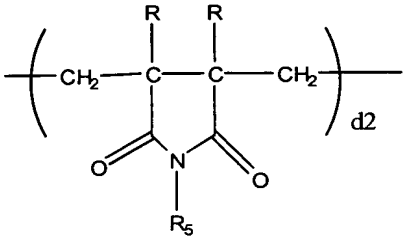
wherein R_1 stands for hydrogen atom or a methyl group, R_2O for one species or a mixture of two or more species of oxyalkylene group of 2 to 4 carbon atoms, providing two or more species of the mixture may be added either in the form of a block or in a random form, R_3 for a hydrogen atom or an alkyl group of 1 to 5 carbon atoms, and m is a value indicating the average addition mol number of oxyalkylene groups that is an integer in the range of 1 to 100, 95 to 2% by weight of a (meth)acrylic acid monomer (b) represented by the above general formula (2), wherein R_4 and R_5 are each independently a hydrogen atom or a methyl group, and M_1 for a hydrogen atom, a monovalent metal atom, a divalent metal atom, an ammonium group, or an organic amine group, and 0 to 50% by weight of other monomer (c) copolymerizable with these monomers, provided that the total amount of (a), (b), and (c) is 100% by weight;

e) a graft polymer that is a polycarboxylic acid or a salt thereof, having side chains derived from at least one species selected from the group consisting of oligoalkyleneglycols, polyalcohols, polyoxyalkylene amines, and polyalkylene glycols;

f) a dispersant of Formula (III):







wherein in Formula (III):

D = a component selected from the group consisting of the structure d1, the structure d2, and mixtures thereof;

X = H, CH_3, C_2 to C_6 Alkyl, Phenyl, p-Methyl Phenyl, or Sulfonated Phenyl;

Y = H or -COOM;

R = H or CH_3;

Z = H, $-SO_3M$, $-PO_3M$, -COOM, $-O(CH_2)_nOR_3$ where n= 2 to 6, $-COOR_3$, or $-(CH_2)_nOR_3$ where n = 0 to 6, $-CONHR_3$, $-CONHC(CH_3)_2$ CH_2SO_3M, $-COO(CHR_4)_nOH$ where n= 2 to 6, or $-O(CH_2)_nOR_4$ wherein n = 2 to 6;

R_1, R_2, R_3, R_5 are each independently $-(CHRCH_2O)_mR_4$ random copolymer of oxyethylene units and oxypropylene units where m= 10 to 500 and wherein the amount of oxyethylene in the random copolymer is from about 60% to 100% and the amount of oxypropylene in the random copolymer is from 0% to about 40%;

R_4 = H, Methyl, C_2 to about C_6 Alkyl, or about C_6 to about C_{10} aryl;

M = H, Alkali Metal, Alkaline Earth Metal, Ammonium, Amine, triethanol amine, Methyl, or C_2 to about C_6 Alkyl;

a = 0 to about 0.8;

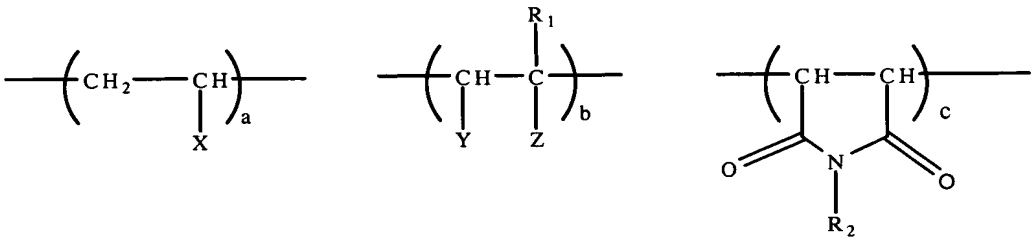
b = about 0.2 to about 1.0;

c = 0 to about 0.5;

d = 0 to about 0.5; and

wherein a, b, c, and d represent the mole fraction of each unit and the sum of a, b, c, and d is 1.0;

g) a dispersant of Formula (IV):



wherein in Formula (IV):

the "b" structure is one of a carboxylic acid monomer, an ethylenically unsaturated monomer, or maleic anhydride wherein an acid anhydride group (-CO-O-CO-) is formed in place of the groups Y and Z between the carbon atoms to which the groups Y and Z are bonded respectively, and the "b" structure must include at least one moiety with a pendant ester linkage and at least one moiety with a pendant amide linkage;

X = H, CH_3, C_2 to C_6 Alkyl, Phenyl, p-Methyl Phenyl, p-Ethyl Phenyl, Carboxylated Phenyl, or Sulfonated Phenyl;

Y = H, -COOM, -COOH, or W;

W = a hydrophobic defoamer represented by the formula $R_5O\text{-}(CH_2CH_2O)_s\text{-}(CH_2C(CH_3)HO)_t\text{-}(CH_2CH_2O)_u$ where s, t, and u are integers from 0 to 200 with the proviso that $t > (s+u)$ and wherein the total amount of hydrophobic defoamer is present in an amount less than about 10% by weight of the polycarboxylate dispersant;

Z = H, -COOM, $-O(CH_2)_nOR_3$ where n= 2 to 6, $-COOR_3$, $-(CH_2)_nOR_3$ where n = 0 to 6, or $-CONHR_3$;

R_1 = H, or CH_3;

R_2, R_3, are each independently a random copolymer of oxyethylene units and oxypropylene units of the general formula $-(CH(R_1)CH_2O)_mR_4$ where m = 10 to 500 and wherein the amount of oxyethylene in the random copolymer is from about 60% to 100% and the amount of oxypropylene in the random copolymer is from 0% to about 40%;

R_4 = H, Methyl, or C_2 to C_8 Alkyl;

R_5 = C_1 to C_{18} alkyl or C_6 to C_{18} alkyl aryl;

M = Alkali Metal, Alkaline Earth Metal, Ammonia, Amine, monoethanol amine, diethanol amine, triethanol amine, morpholine, imidazole;

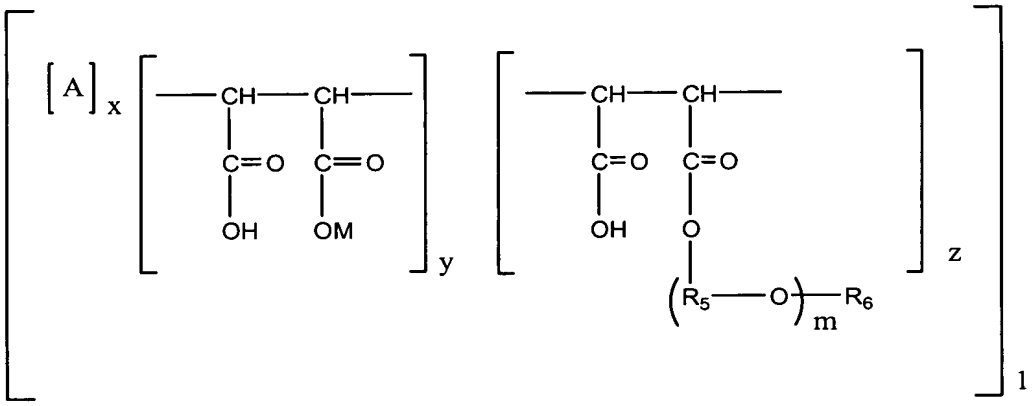
a = 0.01-0.8;

b = 0.2-0.99;

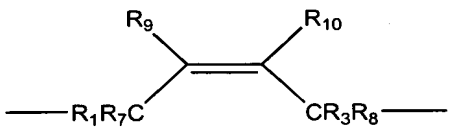
c = 0-0.5; and

wherein a, b, c represent the mole fraction of each unit and the sum of a, b, and c, is 1;

h) a random copolymer corresponding to the following Formula (V) in free acid or salt form having the following monomer units and numbers of monomer units:



wherein A is selected from the moieties (i) or (ii)



(i) $-CR_1R_2-CR_3R_4-$ (ii)

wherein R_1 and R_3 are selected from substituted benzene, C_{1-8} alkyl, C_{2-8} alkenyl, C_{2-8} alkylcarbonyl, C_{1-8} alkoxy, carboxyl, hydrogen, and a ring, R_2

and R_4 are selected from the group consisting of hydrogen and C_{1-4} alkyl, wherein R_1 and R_3 can together with R_2 and/or R_4 when R_2 and/or R_4 are C_{1-4} alkyl form the ring;

R_7, R_8, R_9, and R_{10} are individually selected from the group consisting of hydrogen, C_{1-6} alkyl, and a C_{2-8} hydrocarbon chain, wherein R_1 and R_3 together with R_7 and/or R_8, R_9, and R_{10} form the C_{2-8} hydrocarbon chain joining the carbon atoms to which they are attached, the hydrocarbon chain optionally having at least one anionic group, wherein the at least one anionic group is optionally sulfonic;

M is selected from the group consisting of hydrogen, and the residue of a hydrophobic polyalkylene glycol or a polysiloxane, with the proviso that when A is (ii) and M is the residue of a hydrophobic polyalkylene glycol, M must be different from the group $-(R_5O)_mR_6$;

R_5 is a C_{2-8} alkylene radical;

R_6 is selected from the group consisting of C_{1-20} alkyl, C_{6-9} cycloalkyl and phenyl;

n, x, and z are numbers from 1 to 100;

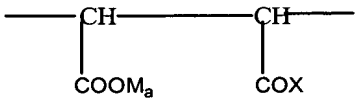
y is 0 to 100;

m is 2 to 1000;

the ratio of x to (y+z) is from 1:10 to 10:1 and the ratio of y:z is from 5:1 to 1:100;

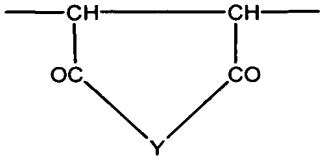
i) a copolymer of oxyalkyleneglycol-alkenyl ethers and unsaturated dicarboxylic acids, comprising:

i) 0 to 90 mol % of at least one component of the formula 3a or 3b:



(3 a)

or



(3 b)

wherein M is a hydrogen atom, a mono- or divalent metal cation, an ammonium ion or an organic amine residue, a is 1, or when M is a divalent metal cation a is ½;

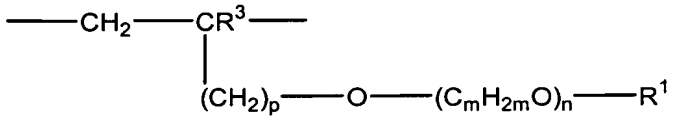
wherein X is $-OM_a$,

$-O-(C_mH_{2m}O)_n-R^1$ in which R^1 is a hydrogen atom, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulphonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100,

$-NHR_2$,$-N(R^2)_2$ or mixtures thereof in which $R^2=R^1$ or $-CO-NH_2$; and

wherein Y is an oxygen atom or $-NR^2$;

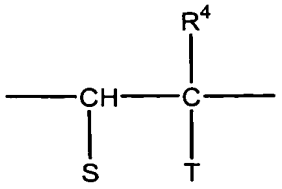
ii) 1 to 89 mol% of components of the general formula 4:



(4)

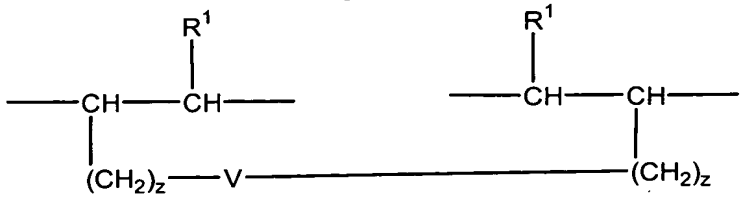
wherein R_3 is a hydrogen atom or an aliphatic hydrocarbon radical containing from 1 to 5 carbon atoms, p is 0 to 3, and R_1 is hydrogen, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulfonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100, and

iii) 0.1 to 10 mol % of at least one component of the formula 5a or 5b:



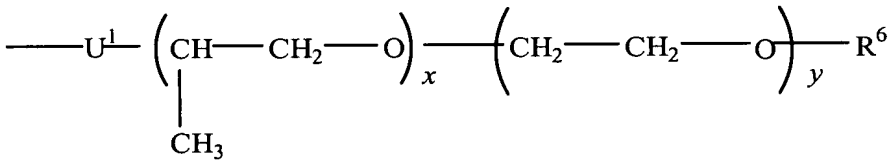
(5a)

or

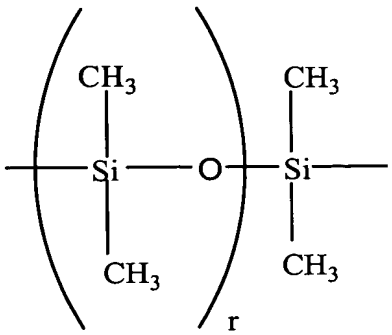


(5b)

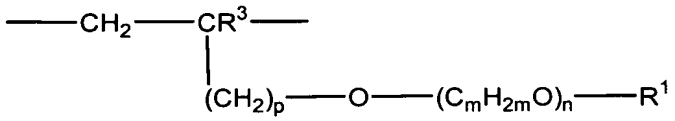
wherein S is a hydrogen atom or $-COOM_a$ or $-COOR_5$, T is $-COOR_5$, -W-R_7, -CO-[-NH-(CH2)3)-]$_s$-W-R_7, -CO-O-$(CH_2)_z$-W-R_7, a radical of the general formula:



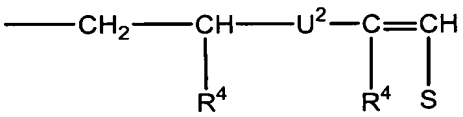
or $-(CH_2)_z$-V-$(CH_2)_z$-CH=CH-R_1, or when S is $-COOR_5$ or $-COOM_a$, U_1 is -CO-NHM-, -O- or $-CH_2O$, U_2 is -NH-CO-, -O- or $-OCH_2$, V is -O-CO-C_6H_4-CO-O- or -W-, and W is



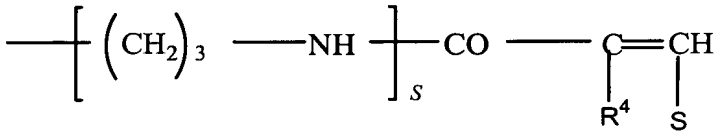
R4 is a hydrogen atom or a methyl radical, R5 is an aliphatic hydrocarbon radical containing 3 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an aryl radical containing 6 to 14 carbon atoms, $R_6 = R_1$ or



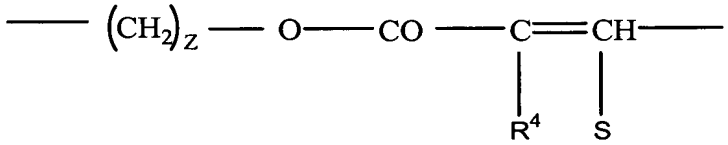
or



$R_7 = R_1$ or

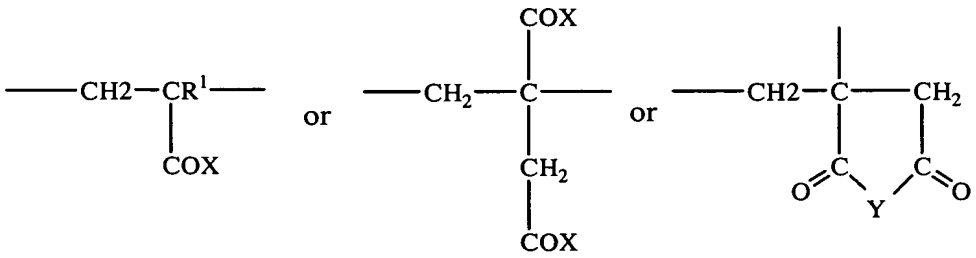


or



r is 2 to 100, s is 1 or 2, x is 1 to 150, y is 0 to 15 and z is 0 to 4;

iv) 0 to 90 mol % of at least one component of the formula 6a, 6b, or 6c:



(6a) (6b) (6c)

wherein M is a hydrogen atom, a mono- or divalent metal cation, an ammonium ion or an organic amine residue, a is 1, or when M is a divalent metal cation a is ½;

wherein X is $-OM_a$,

$-O-(C_mH_{2m}O)_n-R^1$ in which R^1 is a hydrogen atom, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulphonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100,

$-NH-(C_mH_{2m}O)_n-R^1$,

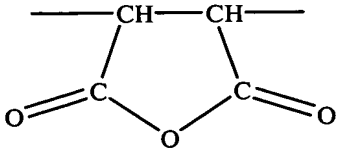
$-NHR_2$, $-N(R^2)_2$ or mixtures thereof in which $R^2=R^1$ or $-CO-NH_2$; and

wherein Y is an oxygen atom or $-NR^2$;

j) a copolymer of dicarboxylic acid derivatives and oxyalkylene glycol-alkenyl ethers, comprising:

i) 1 to 90 mol.% of at least one member selected from the group consisting of structural units of formula 7a and formula 7b:

(7a)



(7b)

wherein M is H, a monovalent metal cation, a divalent metal cation, an ammonium ion or an organic amine;

a is ½ when M is a divalent metal cation or 1 when M is a monovalent metal cation;

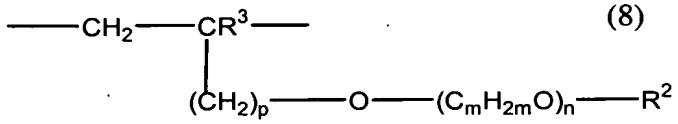
wherein R^1 is $-OM_a$, or

$-O-(C_mH_{2m}O)_n-R^2$ wherein R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

m is 2 to 4;

n is 1 to 200;

ii) 0.5 to 80 mol. % of the structural units of formula 8:



(8)

wherein R^3 is H or a C_{1-5} aliphatic hydrocarbon;

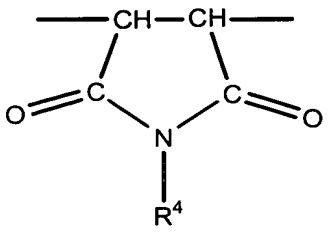
p is 0 to 3;

R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

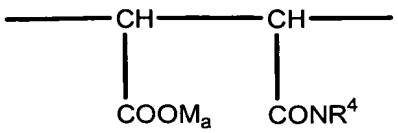
m is 2 to 4;

n is 1 to 200;

iii) 0.5 to 80 mol. % structural units selected from the group consisting of formula 9a and formula 9b:



(9a)



(9b)

wherein R^4 is H, C_{1-20} aliphatic hydrocarbon that is optionally substituted with at least one hydroxyl group, $-(C_mH_{2m}O)_n-R^2$, $-CO-NH-R^2$, C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

M is H, a monovalent metal cation, a divalent metal cation, an ammonium ion or an organic amine;

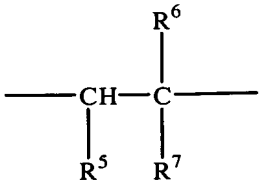
a is ½ when M is a divalent metal cation or 1 when M is a monovalent metal cation;

R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

m is 2 to 4;

n is 1 to 200;

iv) 1 to 90 mol. % of structural units of formula 10



(10)

wherein R^5 is methyl, or methylene group, wherein R^5 forms one or more 5 to 8 membered rings with R^7;

R^6 is H, methyl, or ethyl;

R^7 is H, a C_{1-20} aliphatic hydrocarbon, a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$, a C_{5-8} cycloaliphatic hydrocarbon, $-OCOR^4$, $-OR^4$, and $-COOR^4$, wherein R^4 is H, a C_{1-20} aliphatic hydrocarbon that is optionally substituted with at least one -OH, $-(C_mH_{2m}O)_n-R^2$, $-CO-NH-R^2$, C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl residue that is optionally substituted with a member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$.

74. A method of making a colored cementitious composition without increasing water demand comprising forming a mixture of hydraulic cement and the liquid coloring suspension of claim 73.

75. A method of making a colored cementitious composition without increasing water demand comprising forming a mixture of hydraulic cement and a liquid coloring suspension, said liquid coloring suspension comprising:

a. liquid;

b. polycarboxylate dispersant;

c. pigment; and

d. thixotropic additive.

76. The method of claim 74 or 75 wherein the liquid comprises water.

77. The method of claim 74 or 75 wherein the pigment comprises an inorganic pigment.

78. The method of claim 77 wherein the inorganic pigment comprises a metal containing pigment that comprises at least one of iron oxide, chromium oxide, aluminum oxide, lead chromate, titanium oxide, zinc white, zinc oxide, zinc sulfide, lead white, iron manganese black, cobalt green, manganese blue, manganese violet, cadmium sulfoselenide, chromium orange, nickel titanium yellow, chromium titanium yellow, cadmium sulfide, zinc yellow, cobalt blue, ultramarine blue or mixtures thereof.

79. The method of claim 74 or 75 wherein the pigment comprises an organic pigment.

80. The method of claim 79 wherein the organic pigment comprises phthalocyanine.

81. The method of claim 74 or 75 wherein the thixotropic additive comprises at least one of organic flocculents, organic emulsions of paraffin, coal tar, asphalt, acrylics, bentonite, pyrogenic silicas, natural pozzolans, fly ash, hydrated lime, organoclay, cellulose or mixtures thereof.

82. The method of claim 81 wherein the organoclay comprises at least one of hectorite clay or smectite clay.

83. The method of claim 74 or 75, wherein the amount of polycarboxylate dispersant solids are from about 0.0008% to about 0.51%, pigment solids are from about 0.1% to about 10%, and thixotropic additive is from about 0.00008% to about 0.17%, by total dry weight of cementitious binder.

84. The method of claim 74 or 75, wherein the amount of polycarboxylate dispersant solids are from about 0.004% to about 0.25%, pigment solids are from about 0.25% to about 6%, and thixotropic additive is from about 0.0004% to about 0.07%, by total dry weight of cementitious binder.

85. The method of claim 76, wherein the water to cementitious materials ratio is about 0.38 to about 0.65.

86. The method of claim 74 or 75, wherein the cement comprises at least one of portland cement, modified portland cement, masonry cement, or mixtures thereof.

87. The method of claim 74 or 75 further comprising a cement admixture or additive that comprises at least one of set accelerator, set retarder, air detraining agent, air entraining agent, foaming agent, corrosion inhibitor, shrinkage reducing admixture, water reducer, fiber, pozzolan, clay, strength enhancing agents, rheology modifying agents, water repellents, wetting agents, water soluble polymers, dampproofing

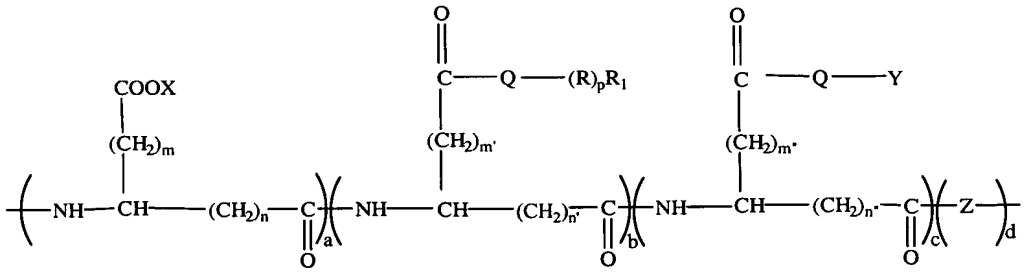
admixtures, gas formers, permeability reducers, pumping aids, fungicidal admixtures, germicidal admixtures, insecticidal admixtures, aggregates, alkali-reaction reducers, bonding admixtures, or mixtures thereof.

88. The method of claim 87, wherein the aggregate comprises at least one of silica, quartz, crushed round marble, glass spheres, granite, limestone, calcite, feldspar, alluvial sands, or sand.

89. The method of claim 87, wherein the pozzolan comprises at least one of natural pozzolan, metakaolin, fly ash, silica fume, calcined clay, or blast furnace slag.

90. The liquid coloring suspension of claim 47 wherein the polycarboxylate dispersant of the liquid coloring suspension is at least one of:

a) a dispersant of Formula (I):



wherein in Formula (I)

X is at least one of hydrogen, an alkali earth metal ion, an alkaline earth metal ion, ammonium ion, or amine;

R is at least one of C_1 to C_6 alkyl(ene) ether or mixtures thereof or C_1 to C_6 alkyl(ene) imine or mixtures thereof;

Q is at least one of oxygen, NH, or sulfur;

p is a number from 1 to about 300 resulting in at least one of a linear side chain or branched side chain;

R_1 is at least one of hydrogen, C_1 to C_{20} hydrocarbon, or functionalized hydrocarbon containing at least one of –OH, -COOH, an ester or amide derivative of

-COOH, sulfonic acid, an ester or amide derivative of sulfonic acid, amine, or epoxy;

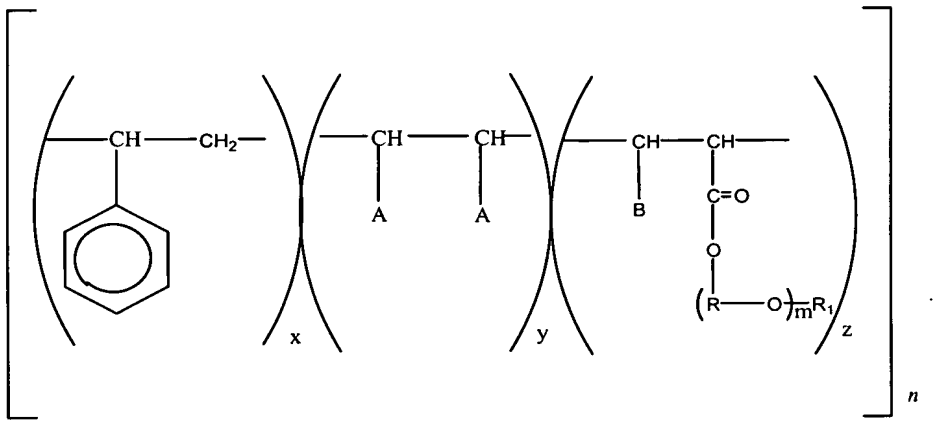
Y is at least one of hydrogen, an alkali earth metal ion, an alkaline earth metal ion, ammonium ion, amine, a hydrophobic hydrocarbon or polyalkylene oxide moiety that functions as a defoamer;

m, m', m'', n, n', and n'' are each independently 0 or an integer between 1 and about 20;

Z is a moiety containing at least one of i) at least one amine and one acid group, ii) two functional groups capable of incorporating into the backbone selected from the group consisting of dianhydrides, dialdehydes, and di-acid-chlorides, or iii) an imide residue; and

wherein a, b, c, and d reflect the mole fraction of each unit wherein the sum of a, b, c, and d equal one, wherein a, b, c, and d are each a value greater than or equal to zero and less than one, and at least two of a, b, c, and d are greater than zero;

b) a dispersant of Formula (II):



wherein in Formula (II):

A is COOM or optionally in the "y" structure an acid anhydride group (-CO-O-CO-) is formed in place of the A groups between the carbon atoms to which the A groups are bonded to form an anhydride;

B is COOM

M is hydrogen, a transition metal cation, the residue of a hydrophobic polyalkylene glycol or polysiloxane, an alkali metal ion, an alkaline earth

metal ion, ferrous ion, aluminum ion, (alkanol)ammonium ion, or (alkyl)ammonium ion;

R is a C_{2-6} alkylene radical;

R1 is a C_{1-20} alkyl, C_{6-9} cycloalkyl, or phenyl group;

x, y, and z are a number from 0.01 to 100;

m is a number from 1 to 100; and

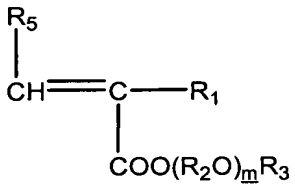
n is a number from 10 to 100;

c) a dispersant comprising at least one polymer or a salt thereof having the form of a copolymer of

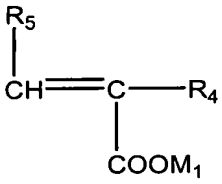
i) a maleic anhydride half-ester with a compound of the formula $RO(AO)_mH$, wherein R is a C_1-C_{20} alkyl group, A is a C_{2-4} alkylene group, and m is an integer from 2-16; and

ii) a monomer having the formula $CH_2=CHCH_2$-$(OA)_nOR$, wherein n is an integer from 1-90 and R is a C_{1-20} alkyl group;

d) a dispersant obtained by copolymerizing 5 to 98% by weight of an (alkoxy)polyalkylene glycol mono(meth)acrylic ester monomer (a) represented by the following general formula (1):



(1)



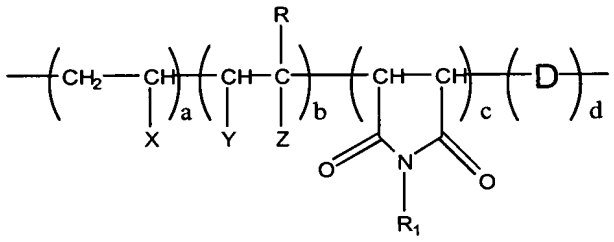
(2)

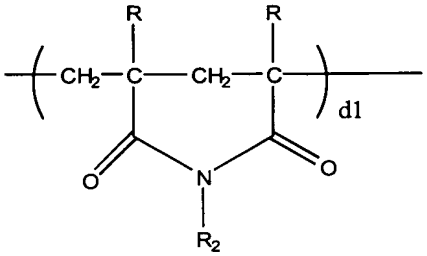
wherein R_1 stands for hydrogen atom or a methyl group, R_2O for one species or a mixture of two or more species of oxyalkylene group of 2 to 4 carbon atoms, providing two or more species of the mixture may be added either in the form of a block or in a random form, R_3 for a hydrogen atom or an alkyl group of 1 to 5 carbon atoms, and m is a value indicating the average addition mol number of oxyalkylene groups that is an integer in the range of 1 to 100, 95 to 2% by weight of a (meth)acrylic acid monomer (b)

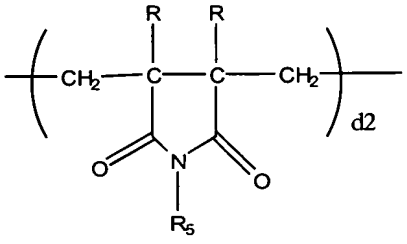
represented by the above general formula (2), wherein R_4 and R_5 are each independently a hydrogen atom or a methyl group, and M_1 for a hydrogen atom, a monovalent metal atom, a divalent metal atom, an ammonium group, or an organic amine group, and 0 to 50% by weight of other monomer (c) copolymerizable with these monomers, provided that the total amount of (a), (b), and (c) is 100% by weight;

e) a graft polymer that is a polycarboxylic acid or a salt thereof, having side chains derived from at least one species selected from the group consisting of oligoalkyleneglycols, polyalcohols, polyoxyalkylene amines, and polyalkylene glycols;

f) a dispersant of Formula (III):







wherein in Formula (III):

D = a component selected from the group consisting of the structure d1, the structure d2, and mixtures thereof;

X = H, CH_3, C_2 to C_6 Alkyl, Phenyl, p-Methyl Phenyl, or Sulfonated Phenyl;

Y = H or -COOM;

R = H or CH_3;

Z = H, $-SO_3M$, $-PO_3M$, -COOM, $-O(CH_2)_nOR_3$ where n= 2 to 6,

$-COOR_3$, or $-(CH_2)_nOR_3$ where n = 0 to 6,

$-CONHR_3$, $-CONHC(CH_3)_2\ CH_2SO_3M$, $-COO(CHR_4)_nOH$ where n= 2 to 6, or $-O(CH_2)_nOR_4$ wherein n = 2 to 6;

R_1, R_2, R_3, R_5 are each independently $-(CHRCH_2O)_mR_4$ random copolymer of oxyethylene units and oxypropylene units where m= 10 to 500 and wherein the amount of oxyethylene in the random copolymer is from about 60% to 100% and the amount of oxypropylene in the random copolymer is from 0% to about 40%;

R_4 = H, Methyl, C_2 to about C_6 Alkyl, or about C_6 to about C_{10} aryl;

M = H, Alkali Metal, Alkaline Earth Metal, Ammonium, Amine, triethanol amine, Methyl, or C_2 to about C_6 Alkyl;

a = 0 to about 0.8;

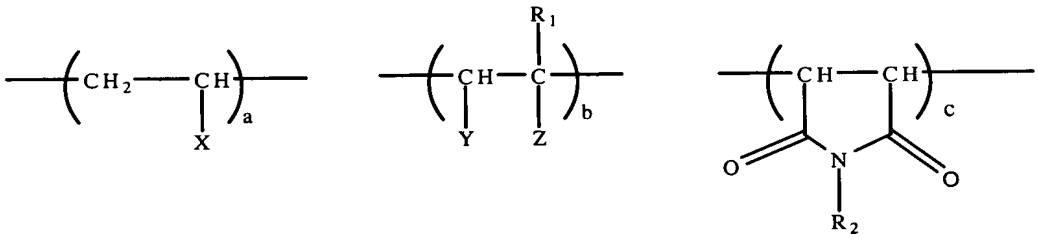
b = about 0.2 to about 1.0;

c = 0 to about 0.5;

d = 0 to about 0.5; and

wherein a, b, c, and d represent the mole fraction of each unit and the sum of a, b, c, and d is 1.0;

g) a dispersant of Formula (IV):



wherein in Formula (IV):

the "b" structure is one of a carboxylic acid monomer, an ethylenically unsaturated monomer, or maleic anhydride wherein an acid anhydride group (-CO-O-CO-) is formed in place of the groups Y and Z between the carbon atoms to which the groups Y and Z are bonded respectively, and the "b" structure must include at least one moiety with a pendant ester linkage and at least one moiety with a pendant amide linkage;

X = H, CH_3, C_2 to C_6 Alkyl, Phenyl, p-Methyl Phenyl, p-Ethyl Phenyl, Carboxylated Phenyl, or Sulfonated Phenyl;

Y = H, -COOM, -COOH, or W;

W = a hydrophobic defoamer represented by the formula $R_5O\text{-}(CH_2CH_2O)_s\text{-}(CH_2C(CH_3)HO)_t\text{-}(CH_2CH_2O)_u$ where s, t, and u are integers from 0 to 200 with the proviso that $t > (s+u)$ and wherein the total amount of hydrophobic defoamer is present in an amount less than about 10% by weight of the polycarboxylate dispersant;

Z = H, -COOM, $-O(CH_2)_nOR_3$ where n= 2 to 6, $-COOR_3$, $-(CH_2)_nOR_3$ where n = 0 to 6, or $-CONHR_3$;

R_1 = H, or CH_3;

R_2, R_3, are each independently a random copolymer of oxyethylene units and oxypropylene units of the general formula $-(CH(R_1)CH_2O)_mR_4$ where m=10 to 500 and wherein the amount of oxyethylene in the random copolymer is from about 60% to 100% and the amount of oxypropylene in the random copolymer is from 0% to about 40%;

R_4 = H, Methyl, or C_2 to C_8 Alkyl;

R_5 = C_1 to C_{18} alkyl or C_6 to C_{18} alkyl aryl;

M = Alkali Metal, Alkaline Earth Metal, Ammonia, Amine, monoethanol amine, diethanol amine, triethanol amine, morpholine, imidazole;

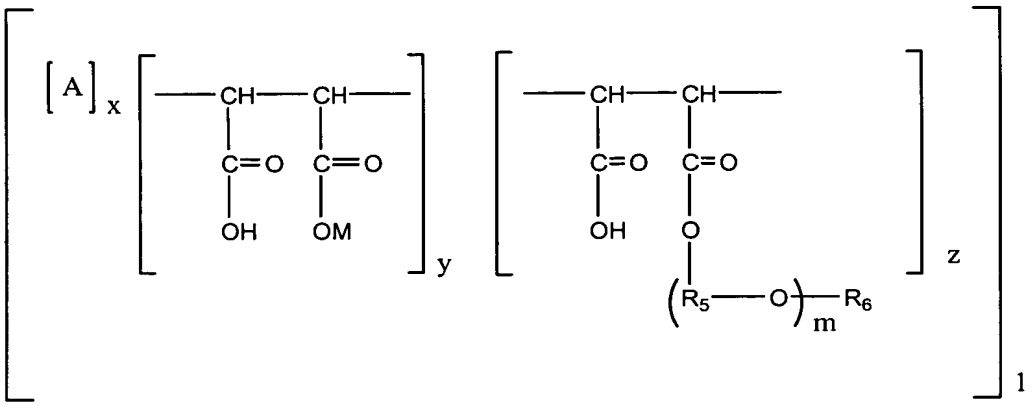
a = 0.01-0.8;

b = 0.2-0.99;

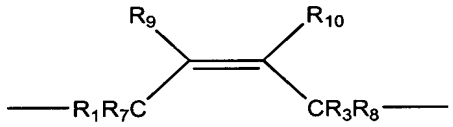
c = 0-0.5; and

wherein a, b, c represent the mole fraction of each unit and the sum of a, b, and c, is 1;

h) a random copolymer corresponding to the following Formula (V) in free acid or salt form having the following monomer units and numbers of monomer units:



wherein A is selected from the moieties (i) or (ii)



(i) $-CR_1R_2-CR_3R_4-$ (ii)

wherein R_1 and R_3 are selected from substituted benzene, C_{1-8} alkyl, C_{2-8} alkenyl, C_{2-8} alkylcarbonyl, C_{1-8} alkoxy, carboxyl, hydrogen, and a ring, R_2 and R_4 are selected from the group consisting of hydrogen and C_{1-4} alkyl, wherein R_1 and R_3 can together with R_2 and/or R_4 when R_2 and/or R_4 are C_{1-4} alkyl form the ring;

R_7, R_8, R_9, and R_{10} are individually selected from the group consisting of hydrogen, C_{1-6} alkyl, and a C_{2-8} hydrocarbon chain, wherein R_1 and R_3 together with R_7 and/or R_8, R_9, and R_{10} form the C_{2-8} hydrocarbon chain joining the carbon atoms to which they are attached, the hydrocarbon chain optionally having at least one anionic group, wherein the at least one anionic group is optionally sulfonic;

M is selected from the group consisting of hydrogen, and the residue of a hydrophobic polyalkylene glycol or a polysiloxane, with the proviso that when A is (ii) and M is the residue of a hydrophobic polyalkylene glycol, M must be different from the group $-(R_5O)_mR_6$;

R_5 is a C_{2-8} alkylene radical;

R_6 is selected from the group consisting of C_{1-20} alkyl, C_{6-9} cycloalkyl and phenyl;

n, x, and z are numbers from 1 to 100;

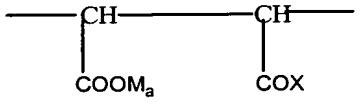
y is 0 to 100;

m is 2 to 1000;

the ratio of x to (y+z) is from 1:10 to 10:1 and the ratio of y:z is from 5:1 to 1:100;

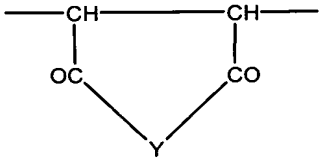
i) a copolymer of oxyalkyleneglycol-alkenyl ethers and unsaturated dicarboxylic acids, comprising:

i) 0 to 90 mol % of at least one component of the formula 3a or 3b:



(3 a)

or



(3 b)

wherein M is a hydrogen atom, a mono- or divalent metal cation, an ammonium ion or an organic amine residue, a is 1, or when M is a divalent metal cation a is ½;

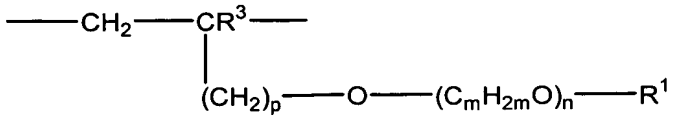
wherein X is $-OM_a$,

$-O-(C_mH_{2m}O)_n-R^1$ in which R^1 is a hydrogen atom, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulphonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100,

$-NHR_2$, $-N(R^2)_2$ or mixtures thereof in which $R^2=R^1$ or $-CO-NH_2$; and

wherein Y is an oxygen atom or $-NR^2$;

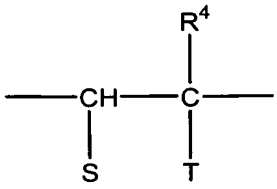
ii) 1 to 89 mol% of components of the general formula 4:



(4)

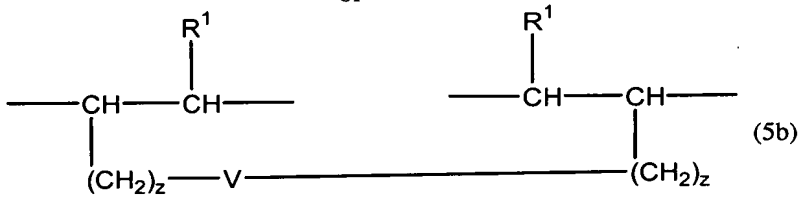
wherein R_3 is a hydrogen atom or an aliphatic hydrocarbon radical containing from 1 to 5 carbon atoms, p is 0 to 3, and R_1 is hydrogen, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulfonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100, and

iii) 0.1 to 10 mol % of at least one component of the formula 5a or 5b:



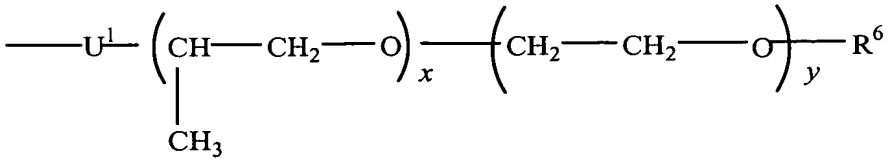
(5a)

or

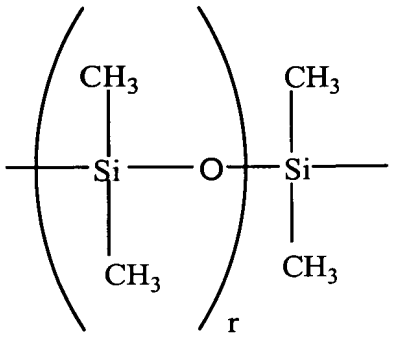


(5b)

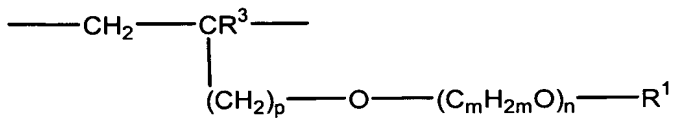
wherein S is a hydrogen atom or $-COOM_a$ or $-COOR_5$, T is $-COOR_5$, $-W-R_7$, $-CO-[-NH-(CH2)3)-]_s-W-R_7$, $-CO-O-(CH_2)_z-W-R_7$, a radical of the general formula:



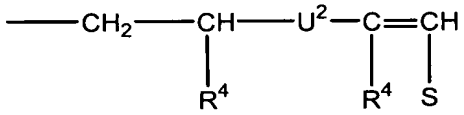
or $-(CH_2)_z-V-(CH_2)_z-CH=CH-R_1$, or when S is $-COOR_5$ or $-COOM_a$, U_1 is -CO-NHM-, -O- or $-CH_2O$, U_2 is -NH-CO-, -O- or $-OCH_2$, V is $-O-CO-C_6H_4-CO-O-$ or -W-, and W is



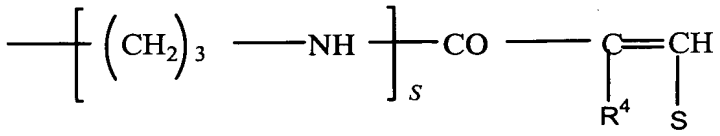
R4 is a hydrogen atom or a methyl radical, R5 is an aliphatic hydrocarbon radical containing 3 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an aryl radical containing 6 to 14 carbon atoms, $R_6=R_1$ or



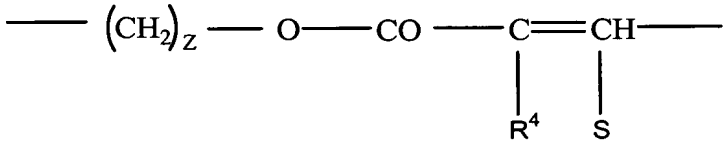
or



$R_7=R_1$ or

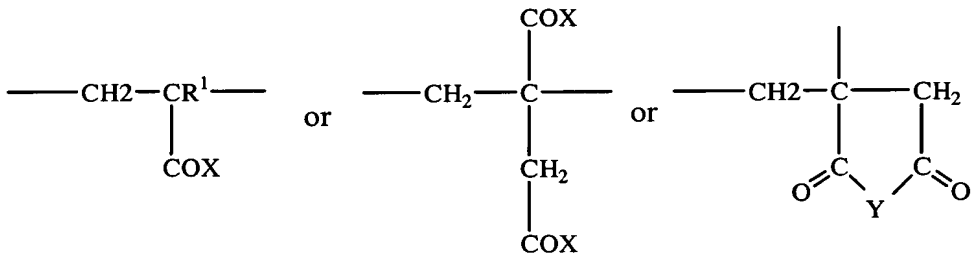


or



r is 2 to 100, s is 1 or 2, x is 1 to 150, y is 0 to 15 and z is 0 to 4;

iv) 0 to 90 mol % of at least one component of the formula 6a, 6b, or 6c:



(6a) (6b) (6c)

wherein M is a hydrogen atom, a mono- or divalent metal cation, an ammonium ion or an organic amine residue, a is 1, or when M is a divalent metal cation a is ½;

wherein X is $-OM_a$,

$-O-(C_mH_{2m}O)_n-R^1$ in which R^1 is a hydrogen atom, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulphonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100,

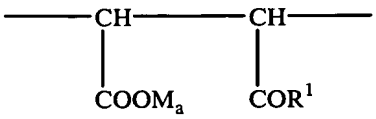
$-NH-(C_mH_{2m}O)_n-R^1$,

$-NHR_2$, $-N(R^2)_2$ or mixtures thereof in which $R^2=R^1$ or $-CO-NH_2$; and

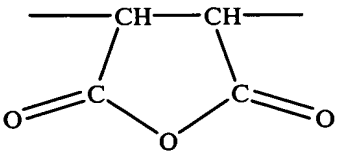
wherein Y is an oxygen atom or $-NR^2$;

j) a copolymer of dicarboxylic acid derivatives and oxyalkylene glycol-alkenyl ethers, comprising:

i) 1 to 90 mol.% of at least one member selected from the group consisting of structural units of formula 7a and formula 7b:



(7a)



(7b)

wherein M is H, a monovalent metal cation, a divalent metal cation, an ammonium ion or an organic amine;

a is ½ when M is a divalent metal cation or 1 when M is a monovalent metal cation;

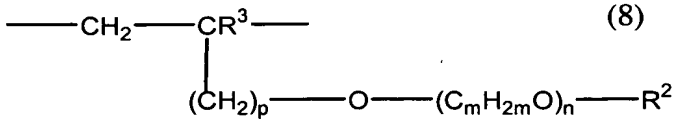
wherein R^1 is $-OM_a$, or

$-O-(C_mH_{2m}O)_n-R^2$ wherein R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

m is 2 to 4;

n is 1 to 200;

ii) 0.5 to 80 mol.% of the structural units of formula 8:



(8)

wherein R^3 is H or a C_{1-5} aliphatic hydrocarbon;

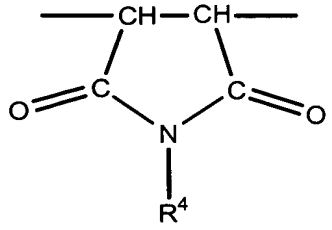
p is 0 to 3;

R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

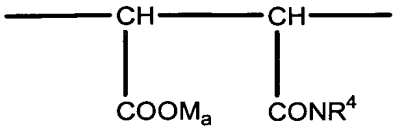
m is 2 to 4;

n is 1 to 200;

iii) 0.5 to 80 mol. % structural units selected from the group consisting of formula 9a and formula 9b:



(9a)



(9b)

wherein R^4 is H, C_{1-20} aliphatic hydrocarbon that is optionally substituted with at least one hydroxyl group, $-(C_mH_{2m}O)_n-R^2$, $-CO-NH-R^2$, C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

M is H, a monovalent metal cation, a divalent metal cation, an ammonium ion or an organic amine;

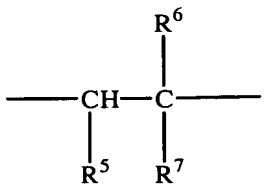
a is ½ when M is a divalent metal cation or 1 when M is a monovalent metal cation;

R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$;

m is 2 to 4;

n is 1 to 200;

iv) 1 to 90 mol. % of structural units of formula 10



(10)

wherein R^5 is methyl, or methylene group, wherein R^5 forms one or more 5 to 8 membered rings with R^7;

R^6 is H, methyl, or ethyl;

R^7 is H, a C_{1-20} aliphatic hydrocarbon, a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$, a C_{5-8} cycloaliphatic hydrocarbon, $-OCOR^4$, $-OR^4$, and $-COOR^4$, wherein R^4 is H, a C_{1-20} aliphatic hydrocarbon that is optionally substituted with at least one -OH, $-(C_mH_{2m}O)_n-R^2$, $-CO-NH-R^2$, C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl residue that is optionally substituted with a member selected from the group consisting of $-COOM_a$, $-(SO_3)M_a$, and $-(PO_3)M_{a2}$.